

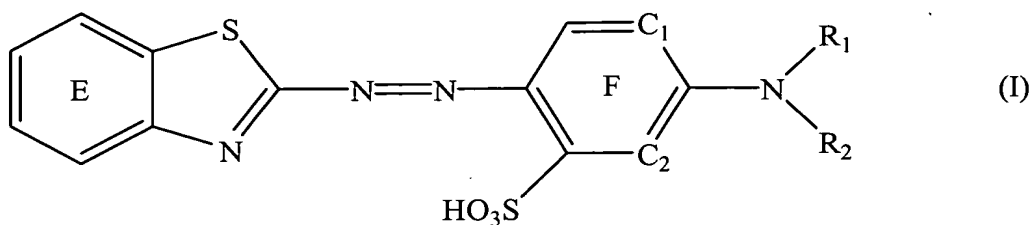
REMARKS

Applicants thank the Examiner for the courtesy extended to Applicants' attorney and Applicants' assignee's representative during the interview held October 2, 2003, in the above-identified application. During the interview, Applicants' attorney explored with the Examiner the rejections of record and explained the superior advantages of the present invention, and discussed other issues raised in the Office Action. The discussion is summarized and expanded upon below.

The present invention relates to an optical recording medium using a chelate dye comprising two or more azo compounds and a metal in a recording layer.

As described in the specification under "Background of the Invention" beginning at page 1, line 10, organic dye optical recording media have been considered to be superior to other types of optical recording media, yet even such organic dye optical recording media have been problematical, in that it has been difficult to satisfy all the requirements of good storage stability, high light fastness, broad margins, such as recording power, and high reflectance at the same time. Merely mixing dyes so as to compensate for mutual weak points has not been a sufficient solution.

As recited in new Claim 8, the present invention is an optical recording medium comprising a substrate and a laser-writable and/or readable recording layer provided thereon, wherein said recording layer contains a chelate dye comprising two or more azo compounds having different structures and a divalent or more metal ion, wherein said azo compounds are selected from compounds represented by the following formula (I):



wherein ring E may have substituent(s), C₁ and C₂ each represents a carbon atom, and R₁ and R₂ each independently represent a hydrogen atom, an alkyl group, an aryl group, an alkenyl group, a cyclic alkenyl group or a cyclic alkyl group, or R₁ and R₂ may be bonded to each other to form a ring, and wherein the following conditions (1), (2) or (3) may apply:

- (1) R₁ and C₁ are bonded to each other to form a saturated ring condensed with ring F,
- (2) R₂ and C₂ are bonded to each other to form a saturated ring condensed with ring F,
- (3) both R₁ and R₂, with both C₁ and C₂, respectively, form a saturated ring condensed with ring F,

with the proviso that in at least one of said two or more azo compounds, (1), (2), or (3) applies.

The rejections of Claims 1-7 under 35 U.S.C. § 102 as anticipated by WO 00/55136, or its U.S. equivalent U.S. 6,551,682, each to (Tosaki et al), are respectfully traversed. The earliest prior art date of Tosaki et al is the PCT publication date of September 21, 2000.

Submitted herewith is a certified English translation of Applicants' foreign priority application, i.e., JP2000-114611, filed April 17, 2000. Applicants respectfully request that the Examiner find that Applicants are entitled to their priority date under 35 U.S.C. § 119. Accordingly, it is respectfully requested that these rejections be withdrawn.

The rejection of Claims 1-7 under 35 U.S.C. § 102(b) as anticipated by JP04-308791 (Maeda et al), is respectfully traversed. Maeda et al discloses an optical recording medium comprising laser-absorbing dyes, wherein at least three kinds of substitution derivatives of the same chromogen are used as the laser-absorbing dyes. The Examiner particularly relies

on Comparative Example 4 therein, which is based on a combination of compounds 1, 3 and 31 disclosed therein. However, the chelate dye of the above-amended claims is not described in Maeda et al. To the extent the Examiner may hold that the presently-claimed invention is otherwise unpatentable over Maeda et al., the newly submitted Shoda Declaration is relied on in rebuttal thereof. The Shoda Declaration demonstrates that a chelate dye according to the presently-claimed invention is superior in storage stability to the dyes of Maeda et al.

The following describes the "Experimentation" in the Shoda Declaration:

(1) Preparation of the Coated Film

Similarly to Example 2 of the present invention, by use of the compound C of 150 mg, the compound E of 150 mg and octafluoropentanol of 10 ml, a dye solution containing the compounds C, D and E was prepared. By the way, the dye solution was filtered through a filter of pore diameter being 200 nm, but there was no problem about filterability.

This solution was dropped on a polycarbonate substrate similarly to Example 2, and coated by a spin coat method while changing the rotation speeds in such manners of holding for 25 seconds after acceleration until 500 rpm in 0.8 seconds, holding for 23 seconds after acceleration until 2400 rpm in 22.99 seconds, holding for 4 seconds after acceleration until 5000 rpm in 1 second, and dried at 100°C for 30 minutes. Thus, the coated film containing the compounds C, D and E was prepared on the polycarbonate substrate.

(2) Storage stability test

The above mentioned coated film was held for 200 hours under the circumstances of the temperature at 85°C and the moisture of 85% for carrying out the storage stability test. Owing to the storage stability test, the absorbance somewhat decreased, but falling within the range having no problem as the recording layer of the optical information recording medium. As to others, no changes were present, nor crystallization occurred, either.

Table 1 below compares storage stability data from the above-discussed experiment and that of Maeda et al.

Table 1

<u>Storage stability of the coated film</u>	
Experiment according to the present invention	○ (No crystallization) (85°C, 85% RH, 200Hr)
<u>Maeda et al</u> Comparative Example 4	△ Partial crystallization (70°C, 85% RH, 200Hr)

As above Table 1 indicates, although the dye of the present invention was subjected to a storage stability test at a higher temperature and under severer conditions than those of Comparative Example 4 of Maeda et al, the coated film generated no crystallization, keeping the film stable. In short, it is seen that the chelate dye comprising the azo compounds of the present invention is superior in storage stability to the dye of Maeda et al.

It is understood that the above-discussed experiment of the present invention differs in a number of test conditions from Comparative Example 4 of Maeda et al as follows:

the amounts of the used dyes (the present invention: 300 mg, Maeda et al: 200 mg),
the solvents (the present invention: OFP, Maeda et al: HMB),
the amounts of the solvents (the present invention: 10 mg, Maeda et al: 10 g),
the rotation numbers of the spin coat method (the present invention: controlled,
Maeda et al: constant at 1000 rpm),
the drying conditions (the present invention: 100°C, 30 min, Maeda et al: 60°C, 10 min), and
the storage stability tests (the present invention: 85°C, 85%, 200 Hr, Maeda et al: 70°C, 85%, 200 Hr).

Although the amount of the dye used, the solvent, the amount of the solvent, and the rotation number of the spin coat method influence the thickness of the coated film, the film thickness is not largely changed by such differences of the conditions. Any change in film thickness would not be expected to influence durability.

The drying conditions are different depending on the solvents used, but generally, the higher the temperature and the longer the time, the greater the expected deterioration of the coated film. Thus, although the drying condition for the experiment of the present invention is severer to the coated film, and the fact that no deterioration is found in the coated film, provides proof of superiority of the present invention in storage stability of the dye compared to Maeda et al. As the storage stability test was also carried out at severer conditions for the above-discussed experiment compared to Maeda et al., i.e., and still no deterioration was found in the coated film, is further evidence of such superiority.

For all the above reasons, it is respectfully requested that the rejection over Maeda et al be withdrawn.

The rejection of Claims 1-7 under 35 U.S.C. § 103(a) as unpatentable over EP0887202 (Kambe et al), is respectfully traversed. In the optical recording medium of Kambe et al, only dyes D-15 and D-19, at page 29 thereof, have a benzothiazole ring and a sulfonyl group. However, neither compound D-15 nor compound D-19 satisfies the proviso (1), (2), or (3), of the present claims. The D-15 and D-19 compounds have structural formulae close to that of the dyes of Maeda et al, *supra*, and it would thus be expected that they would have similar properties. Nevertheless, the presently-claimed invention is not *prima facie* obvious over Kambe et al, so this argument is moot. More fundamentally, contrary to the finding by the Examiner, there is no clear pattern of data therein which would indicate that a mixed ligand system of the type originally claimed herein would provide superior results to the use of non-mixed ligand systems.

For all the above reasons, it is respectfully requested that the rejection over Kambe et al be withdrawn.

The rejection of Claim 7 under 35 U.S.C. § 112, second paragraph, as being indefinite in the recital of the term "the residual moiety" is respectfully traversed. Indeed, the rejection is now moot in view of the above-discussed amendment. Accordingly, it is respectfully requested that it be withdrawn.

The objection to the amendment filed December 17, 2001, as containing new matter, is respectfully traversed. First of all, a dialkyl amino group **necessarily** has two carbon atoms. Therefore, the replacement of "1" with --2-- corrects an error only. Secondly, regarding the use of square brackets, the brackets in the amendment correspond to the brackets as originally described in the specification. Therefore, whether or not such brackets are proper, they cannot be new matter. Nevertheless, at the time of the amendment filed December 17, 2001, it is believed that 37 C.F.R. § 1.121 did not prescribe the use of brackets to delete subject matter. **Submitted herewith** is a copy of 37 C.F.R. § 1.121 in existence as of August 2001, which it is believed was controlling in December 2001 and which provides for making specification amendments by, in effect, replacing paragraphs with clean paragraphs, with the use of brackets reserved for possible use with a marked-up section only.

For all the above reasons, it is respectfully requested that the objection be withdrawn.

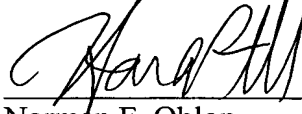
Applicants respectfully call the Examiner's attention to the Information Disclosure Statement filed November 19, 2003. The Examiner is respectfully requested to initial the Form PTO-1449 submitted therewith, and include a copy thereof with the next Office communication.

Application No. 10/015,659
Reply to Office Action of August 28, 2003

All of the presently-pending claims in this application are now believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Respectfully submitted,

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